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A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH

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Dear Sir:

A $5 million nuclear engineering and development center will be built by Combustion Engineering, Inc., on a 530-acre site in Windsor, Conn. The firm has contracted to purchase the site, and plans to begin operations in the new plant late next year. The Connecticut plant will comprise facilities for complete design and development of nuclear power reactors, the construction of reactor cores, and the manufacture of related nuclear fuel elements. Actual production will be limited to "light" components, as contrasted with the "heavy" manufacturing at the company's Chattanooga, Tenn., plant. The Chattanooga plant, for manufacturing nuclear power equipment, is now nearing completion. Stone & Webster Engineering Corp. will be architects-engineers for the project. (Other BUSINESS news, p. 2 this LETTER.)

A Geiger counter built into a portable radio, using the loud speaker of the set for radiation indication, has been produced by Sylvania Electric Products, Inc. Tentatively priced to retail at $64.95, the new set, model 3401, will be ready for market next February. The set will be promoted for civil defense use, as well as prospecting. A sun dial and compass are also built into the set, which is about 7"x10"x3"; weighs 4½-lbs., less batteries; uses two "A" batteries, and one "B" battery; and has four tubes plus one rectifier and one Geiger tube. (Other PRODUCT news, p. 4 this LETTER.)

Standardization of instruments and components for nuclear applications is being discussed by representatives of the electronics industry in Cleveland today, Dec. 13th, under the auspices of the committee on nuclear instrumentation of the Radio-Electronics-Television Manufacturers Assoc. (RETMA)..... The inaugural meeting of the British Nuclear Energy Conference was held last fortnight at the Institution of Civil Engineers, London, Eng. The meeting was opened by Sir Christopher Hinton, while Sir John Cockcroft discussed the U.K. atomic energy project. (Other MEETING news, p. 5 this LETTER.)

Because several uranium mineral finds have been made recently in southeastern Alaska, the U.S. Bureau of Mines has now installed equipment at Juneau, Alaska, to test uranium specimens. Prospectors who wish the free service should mail the specimen to P.O. Box 560, Juneau. Detailed exploration by a large mining company of the more promising finds in the Territory has also aroused interest in the uranium potentialities there. (Other RAW MATERIALS news, p. 2 this LETTER.)

A nuclear reactor designed specifically for medical research and treatment will be an important unit in a new medical research center to be built at Brookhaven National Laboratory, Upton, N.Y. To cost $6 million exclusive of design and engineering, the new facility will house a nuclear reactor, a research hospital, an industrial medicine branch, and research divisions in medical physics, pathology, microbiology, biochemistry, physiology, and clinical chemistry. The new reactor will make available a source of neutrons for experimental work on brain cancer, as well as providing a number of special short-lived radioisotopes.

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ATOMIC ENERGY BUSINESS REPORTS...

GROWTH IN NUCLEAR INDUSTRY FORECAST:- By 1960, nuclear power in the U. S. will represent a private investment of $250 million, with a capacity of 1 million kw. of electrical energy, the nuclear industry committee of the Investment Banking Association predicted in a report presented before the IBA's annual convention in Hollywood, Fla., last fortnight. William S. Hughes, of the Los Angeles investment house of Wagenseller & Durst, Inc., presented the report to the convention. The report noted that there are now about 140,000 persons in the U. S. engaged in nuclear work, with 6,000 working directly for the USAEC. About 60,000 are in construction work, with about 74,000 in the operation of nuclear projects. Great Britain, where coal and oil are in short supply, and are costly, will arrive at economic nuclear power sooner than the U. S., the report observed. Since Germany has no military problem, that country will take the leadership in applied atomic energy and by 1965 her investment in commercial reactors may well equal that of the U. S. and the U.K., the report predicted. The study suggested that persons following the development of applied atomic energy should watch for such developments as improvements in waste disposal methods; U.S. Government policy concerning participation of U.S. companies in foreign projects; competitive advantages which may be achieved by Germany and England in exporting reactors; and U.S. Government decisions concerning the adequacy of stockpiles of fissionable materials.

EXPANSION PLANNED IN NUCLEAR ENERGY FIELD:- Raytheon Manufacturing Co., Waltham, Mass., will expand its activities in the nuclear energy field, under plans formulated by the firm. Its expanded program includes investigation of liquid metal reactors; nuclear power plant control systems; reactor instrumentation; remote handling equipment; fuel element fabrication; ionizing radiation applications; and the effects of radiation. The company now makes products which have direct applications in nuclear development and manufacturing including electronic components, custom engineered transformers, etc.

PRIVATE NUCLEAR REACTOR PLANNED FOR CANADA:- Twelve Canadian companies in the rubber, oil, chemical and other industries have been invited by the Pulp & Paper Research Institute of Montreal, and Isotope Products, Ltd., of Oakville, to consider plans to build a nuclear reactor at a cost of about $1.5 million for their specific industrial purposes. Participating firms would share the cost and own the reactor, while Isotope Products would operate it for research and production of radioisotopes for member firms. (Isotope Products is the only firm in Canada specializing in industrial applications of atomic energy; formed in 1950, the firm now has branches in Montreal, Edmonton, Buffalo, N.Y., and Houston, Tex.)

RAW MATERIALS...prospecting, mining, marketing...

UNITED STATES:-Option to purchase for a reported $30 million the Happy Jack Uranium Mine, located in White Canyon, Utah, has now been given the newly formed National Mining & Milling Corp., by the Happy Jack owners, Joe Cooper and Fletcher and Grant Bronson, of Monticello, Utah. One third each of National Mining is held by Lewis W. Douglas and his son Lewis, Jr., who is president of Christiana Oil Corp., Denver; by Foley Brothers, Inc., of New York, and E. T. Foley of Calif., who have other coal and uranium interests; and by E. C. Simmons, Los Angeles, a large California oil operator. The Happy Jack mine was purchased for $1,000 by Cooper and the Bronsons in 1946 as a copper prospect, but excessive amounts of uranium made copper production impossible. Development of its uranium potentialities started when the USAEC began its purchasing program a few years later.....Continental Uranium, Inc., of Grand Junction, Colo., has received a contract from the USAEC for construction and operation by Continental of a uranium processing mill at La Sal, Utah. Continental will own and operate the mill, with the USAEC purchasing the entire output of uranium concentrates.

CANADA:-A two year option on a monazite lode deposit, covering 18 claims in the Lake Athabaska district, Saskatchewan, has now been obtained by Lindsay Chemical Co., N. Chicago. Initial geological surveys made of the property last Summer showed a main vein averaging 12-feet wide, and assaying an average of 15% monazite.

NEW ZEALAND:-Uranium ores found on the west coast of New Zealand's South Island have assayed 0.27% uranium oxide, R. W. Willett, of the New Zealand Department of Scientific Research has reported. Mr. Willett said this was twice as much as the rich uranium ores of Australia's Rum Jungle deposits.

ATOMIC ENERGY FINANCIAL REPORTS...

FINANCING PLANS APPROVED FOR NEW ENGLAND NUCLEAR POWER STATION:- This plant, to be built and operated (provided the USAEC approves its plans) by Yankee Atomic Electric Co., organized by 12 electric utilities in New England, has had its initial financing plans approved by the Securities and Exchange Commission. Yankee has been authorized by the SEC to issue $500,000 in capital stock, and up to $500,000 in unsecured, non-interest bearing promissory notes. The stock will be taken up by the sponsoring utilities, while the notes will be sold to these sponsors according to their stock interests. Yankee will use the funds to buy a site for the plant, and to pay for engineering and nuclear consulting services. The plant, which will be erected at Rowe, Mass., will use a pressurized water reactor, and will be designed to produce 134,000 kw. of electrical energy. Total cost of the plant was estimated by Yankee at $33.4 million; up to $4 million in financial assistance is expected to be obtained from the USAEC, the firm told the SEC. Among the 12 sponsoring utilities, New England Power, Boston, would take 30% of Yankee's common stock; Connecticut Light & Power Co., Hartford, would take 15%; while the remaining firms would take from 9.5% to 0.5% of the shares.

NEW URANIUM PURCHASE MADE BY INVESTMENT TRUST:- Atlas Corp., large U. S. investment trust, and one of the largest owners of uranium properties in the U. S., has bought a 66⅔% interest and working control of the Almar uranium mine in Utah for approximately $8 million. Atlas now has a total investment of $37 million in uranium mining properties, of which $32 million is in so-called special situations where it exercises control, while $5 million is in investment portfolio holdings of the common stock of uranium mining companies. Almar is in the Big Indian mining district in Utah, where such producers as Charles Steen's Mi Vada mine, Homestake Mining's LaSal and Little Beaver properties, and others, have taken out profitable quantities of uranium ores. The Almar stock was bought through Atlas's subsidiary Hidden Splendor Mining Co. (Hidden Splendor recently contracted for 3 years to supply 5,000 tons of uranium ore per month to Vitro Uranium Corp., subsidiary of Vitro Corp. of America.)

EARNINGS REPORTS ON NUCLEAR WORK:- The tapering off of specialized defense work at Daystrom, Inc.,'s instrument division, and at Daystrom Electric Corp., has adversely affected current earnings, according to Thomas R. Jones, Daystrom, Inc., president. (The Daystrom instrument division produces, among other things, nuclear instruments. See PRODUCT news, this LETTER, for new Daystrom nuclear instruments.) Mr. Jones said that satisfactory profit margins are being realized from Daystrom's newly acquired firms: Weston Electrical Instrument Corp., Newark; Heath Company, Benton Harbor, Michigan; and Daystrom Pacific Corp., Santa Monica, Calif. ..... General Dynamics Corp. does not expect to show a large profit on the nuclear powered submarines its Electric Boat division is building for the U.S. Navy, John J. Hopkins, president, General Dynamics, recently said. In addition to the Nautilus and Sea Wolf, first nuclear powered craft, the firm has a third underseas craft on the ways, and holds letters of intent from the U.S. Navy for two more. Mr. Hopkins said he felt these nuclear submarines were being economically produced.

ANALYSES OF FIRMS IN NUCLEAR WORK AVAILABLE: A review of Thompson Products appears in the "Investor's Reader" of Merrill Lynch, Pierce, Fenner, & Beane, 70 Pine St., NYC..... A discussion of General Dynamics Corp. has been made by Paine, Webber, Jackson & Curtis, 25 Broad St., NYC.

OUTSIDE THE UNITED STATES...atomic energy activities...

NORWAY:- The nuclear power reactor to be built at Halden, South Norway, could be in operation by 1957 if the Norwegian parliament gives its approval, Dr. Odd Dahl, leader of the project, has stated. The plant will be operated in conjunction with Saugbrugsforeningen, a pulp and paper plant there.

UNITED KINGDOM:- A delegation of British nuclear physicists and executives from UK atomic projects recently concluded a 6 day visit to the Soviet Union. Among Soviet projects visited were a nuclear power station, the Lebedev Institute, and the Institute of Gecchemistry and Analytical Chemistry of the Academy of Sciences of the USSR. Members of the British delegation included Dr. F. J. Schonland, deputy director, Atomic Energy Research Establishment, Harwell; B.D. Goodlet, head of the engineering research and development division, AERE; Dr. J. V. Dunworth, head of the reactor physics division, AERE; J.C.C. Stewart, director of technical policy, industrial group, U.K. Atomic Energy Authority; and others from the AERE and the Authority.

NEW PRODUCTS, PROCESSES & INSTRUMENTS...for nuclear applications...

NEW PRODUCTS FROM MANUFACTURERS: Model 2612L portable Geiger counter for uranium prospecting covers intensities of 0.2, 2, and 20 mr/hr full scale, when using meter; earphones are also supplied with the unit. The Geiger probe may be mounted in the handle of the unit, or removed for surveying crevices, drill holes, etc. ..... Model 1810 radiation analyzer is used with a scaler or rate-meter and scintillation counter to make possible more precise measurements of gamma emitting radioactive samples. An adjustable "window" on the analyzer may be set so that only those pulses which fall within a pre-selected portion of the isotope's energy spectrum are counted, thus virtually eliminating background and scattered radiation from the final count. --Nuclear Instrument & Chemical Corp., Chicago 10, Ill.

Model 2011A scaler, using transistors, and model 2003A subminiature log count rate meter, are the first two of this manufacturer's new line of miniaturized nuclear reactor control instruments. The scaler, which may be used to obtain an accurate count of the activity of nuclear reactors or radioactive samples, is said to make full use of the advantages of transistors and printed circuit techniques. In addition to being small, the power requirements of this instrument are said to be about one one-hundredth that of the conventional scaler. The log rate count meter may be used as a general radiation survey instrument or as an auxiliary power indicating device for nuclear reactors. In this new subminiature version, the instrument is about one-twentieth the size of a conventional device, making it applicable for use with portable facilities. --Daystrom Instrument, division of Daystrom, Inc., Archbald, Pa.

Model CS-40 is a new high level portable radiation monitor offering ranges of 0.02, 0.2, 2, and 20 r/hr, thus making this instrument useable even at diagnostic levels. A feature of the instrument is its disposable ion chamber, which may be discarded and inexpensively replaced if contaminated..... Model C-2900 is a new single channel pulse height analyzer designed to count a specific isotope exclusively or to simplify the use of two or more isotopes used in a single experiment. Design follows the specifications of the Francis-Bell instrument engineered at Oak Ridge National Laboratories, and includes a linear amplifier, count rate meter, high voltage power supply, and pulse height selector, all built on a single chassis. --NRD Instrument Co., St. Louis 14, Mo.

NOTES:- Drug products sterilized by ionizing radiation may not be shipped in interstate commerce unless covered by an effective new drug application, the Food and Drug Administration has now ruled. FDA has stated that all drug products, including injections, ophthalmic solutions, surgical sutures, and surgical dressings, sterilized by radiation, are regarded as new drugs. The FDA has already permitted several new drug applications of this nature to become effective, and some irradiation sterilized products are believed to be on the market.

A 1 million electron-volt Van de Graaff particle accelerator has been sold by High Voltage Engineering Corp., Cambridge, Mass., to Yale University. The accelerator will be used at Yale's newly-established biophysics department to study the use of ionizing radiation in determining structure and function of cell components.

Plant facilities and offices of NRD Instrument Co., St. Louis, Mo., have now been expanded to enable increased production of the firm's nuclear instruments. Engineering and production personnel have been increased; separate shop facilities for development work have been established; and manufacturing facilities have been enlarged.

MANUFACTURERS' LITERATURE:- A pamphlet titled Nuclear Reactor Data lists all significant data on every nuclear reactor known to be built or under construction anywhere in the world, including six in the Soviet Union. Believed to be the most complete compilation of its type ever made, it is the work of the nuclear power group in the research division of Raytheon Manufacturing Co., Waltham 54, Mass., under the direction of William A. Robba, head of this group. It is available on request to Raytheon..... A new catalog of nuclear instruments designed for medical use may be obtained from NRD Instrument Co., St. Louis 14, Mass. ..... A new brochure describing radioisotope equipment for clinical medicine is available from Berkeley Div., Beckman Instruments, Inc., Richmond 3, Calif.

NEW BOOKS & OTHER PUBLICATIONS...on nuclear subjects...

Nuclear Notes for Industry; Issue of Dec. 9, 1955. Guide to USAEC-developed unclassified information of special industrial interest. --USAEC, Tech. Info. Service, Oak Ridge, Tenn. (n/c).

Beta and Gamma Ray Spectroscopy. Editor, Kai Siegbahn, University of Uppsala, Sweden. A definitive account of the whole field, by forty-two contributors from twenty-five research centers. 980 pages. --Interscience Publishers, New York 1. ($20.00).

Simple Meter for Radioactive Fall Out, by C.C. Klick, et al, U. S. Naval Research Laboratory. A dose rate meter using a cadmium sulphide crystal. No. PB-111694. --Office of Technical Services, Washington 25, D.C. (50¢)

Neutron Converter: Thermal Neutron Flux Calibration, by H. M. Childers, et al, U. S. Naval Research Laboratory. A device for the production of fast and thermal neutron fields has been constructed and the thermal neutron fields calibrated. No. PB-118453. (Microfilm: $2.40; Photostat: $3.30)..... Ionizing Radiation as it Affects Cells, by Spencer W. Brown, Univ. of Calif., College of Agriculture. No. PB-118113. (Microfilm: $1.80; Photostat $1.80). --Library of Congress, Washington 25, D. C.

MEETINGS & CONFERENCES...in the nuclear field...

NUCLEAR CONGRESS OPENS:- The Nuclear Engineering and Science Congress, coordinated by the Engineers Joint Council, with some 26 engineering and scientific groups participating, opened yesterday (Dec. 12), at the Public Auditorium, in Cleveland, Ohio. The first cooperative congress of its kind, papers are being presented by representatives of industry, government agencies, and universities. Preprints of papers being presented are available from the American Institute of Chemical Engineers, 25 W. 45th St., New York 36, at 30¢ per paper. The complete set is available for $65.00. Held in conjunction with the Congress is the Atomic Exposition in Cleveland, which opened last week (Dec. 10th), and which has nuclear product exhibits from organizations in the U. S. and abroad.

CANADIAN MINERAL RESOURCES TO BE DISCUSSED:- The Prospectors and Developers Association (Canada) has now set Mar. 4-7, 1956, as the date for its 24th annual meeting and convention, to be held in Toronto. Canada's technical advancement in nuclear reactors will be discussed by Dr. David A. Keys, scientific adviser to the president of Atomic Energy of Canada, Ltd., who will speak on Nuclear Energy; Future Source of Power. Panel Discussions will also cover lithium--from the viewpoint of concentration and chemical treatment--as well as the practicability of refining low-grade uranium ores by decrepidation process.

RESEARCH PROJECTS...pure and applied, in nuclear field...

PETROLEUM RESEARCH:- The effect of gamma rays on petroleum, chemicals, and polymers, which has been under investigation at Esso Research and Engineering Co.'s new Linden, N.J., research laboratory, has shown that gamma radiation may be useful in the production of gasoline from petroleum. Esso studies found that gamma radiation gives higher yields than present cracking processes, that it accelerates the reaction, and requires less heat. Progress in the laboratory has reached the patent-applied-for stage, Esso stated, although commercialization of the process is some years away. (The gamma ray source used by Esso is a 3,100 curie cobalt pipe, bombarded for 2½-years in the Brookhaven reactor.)

WATER TREATMENT LABORATORY:- A $1.5 million laboratory, now in operation by General Electric Co., at Hanford plutonium production plant, will seek water treatment methods that will permit the plutonium production reactors there to operate at faster rates with greater production of fissionable material. G-E has found that as reactor power increases, so does corrosion of reactor tubes and fuel elements from the reactor cooling water. Also, impurities in the cooling water become radioactive when exposed to intense neutron bombardment in the reactors. The new laboratory provides large-scale facilities for experiments in filtering and chemical treatment, and for corrosion and hydraulic studies.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

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